

SYSTEM SUPPORT DIRECTIVE

ASR9

SDR-ASR9-009

6310

**System
Documentation
Release**

**UPDATE PAGES TO
TI 6310.25**

Highlights

11/02/2004

1. PURPOSE. This system documentation release (SDR) provides additional corrections to Instruction Book, TI 6310.25, ASR-9 System Transmitter Channel A/B (Unit 1/6). No CCD number is required for this SDR.

2. DISTRIBUTION.

a. This SDR is distributed to selected offices and services within Washington headquarters, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, regional Airway Facilities divisions, and Airway Facilities field offices having the following facilities/equipment: ASR-9.

b. An electronic version and distribution report of this SDR are available on an Intranet site located at <http://aos-ext.amc.faa.gov/> under the "Technical Documentation" heading.

c. To obtain additional hard copies of this publication, contact Printing & Distribution Team, AMI-700B, at (405) 954-6892.

3. WITHDRAWALS/CANCELLATIONS. SDR-ASR9-008, Update to EEM 6310.18, CHG. 19, CHAP. 16, dated 05/25/2004 is withdrawn.

4. APPLICATION. The revised pages apply to all holders of Instruction Book TI 6310.25.

SSD PAGE CONTROL CHART

Remove Pages	Dated	Insert Pages	Dated
<u>SSD TOC</u>			
All pages	All dates	All dates	11/02/2004
<u>TI 6310.25</u>			
7-37 and 7-38	05/25/2004	7-37 and 7-38	11/02/2004
7-39 and 7-40	undated	7-39	11/02/2004
		7-40	undated

DISTRIBUTION: 53AC

INITIATED BY: ASR-9
Terminal/RDAS Branch

5. CHANGES TO RECORDED DATA. Process a modification record and place this record into the Facility Reference Data File (FRDF) in accordance with the latest Order 6032.1 National Airspace System Modification Program and Order 6030.45 Facility Reference Data File

6. ADDRESS CHANGES. Submit facility address, copy count, and additions or deletions to Carrie Batty via email to Carrie.ctr.Batty@faa.gov.

7. RISKS. If changes are not incorporated, unauthorized configuration may degrade the efficiency of the National Airspace Systems (NAS) and the ability to maintain operations.

8. STATUS ACCOUNTING. The maintenance organization does not open LEM entries for documentation releases because the Facility/Service Equipment Profile (FSEP) does not clearly identify where all documentation is located. Providing your equipment is listed in the FSEP, you should open a Log Equipment Modification (LEM) record in the Maintenance Management System (MMS) for the system to be modified from paragraph 6, Application.

- a. Upon completion of this modification, you are required to close the LEM record and change the Maintenance Action Code (MAC) to:
 - (1) **"G"** if the modification was completed.
 - (2) **"W"** if the modification is not applicable.
- b. Verify that an "N" is in the "REP COD" field to ensure that the log entry will be upwardly reportable to the national database for National MOD Tracking.
- c. The data entry record is to be entered into the LEM as follows:

MMS FIELD NAME	DATA ENTRY
FAC/SERV:	Enter your facility/service type
LOC INDENT:	Enter your site identification
SHORT NAME:	Enter the short name for this equipment from MMS
ORDER#/SYSTEM:	SDR-ASR9
CHAP/SEQ#:	009
CHG:	D



for Richard A. Thoma
Director for Technical Operations Support

LIST OF APPENDIXES AND ATTACHMENTS

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ATTACHMENT 1. SSD TABLE OF CONTENTS

SYSTEM SUPPORT DIRECTIVE (SSD)

TABLE OF CONTENTS

SYSTEM SUPPORT MODIFICATIONS (SSM)

<u>Document Number</u>	<u>Date Issued</u>	<u>Title</u>
SSM-ASR9-001	04/23/99	ASRS-9 SERIAL INTERFACE SYSTEM
SSM-ASR9-002	02/06/98	TRANSMITTER POWER INTERRUPT AND BLOWER MOTOR FUSE
SSM-ASR9-003	10/19/99	REMOVAL OF CIRCUIT BREAKERS FROM MODEM RACK
SSM-ASR9-004	03/13/98	UPGRADE MODE-S INTERFACE SUPPORT
SSM-ASR9-005	04/01/99	PROCESSOR AUGMENTATION CARD PHASE I
SSM-ASR9-006	04/29/98	ASR-9 REMOTE SCIP CIRCUIT BREAKER WIRING CONNECTION
SSM-ASR9-007	06/07/99	ALTERNATE DUAL REDUNDANT MODIFICATION
SSM-ASR9-008	08/02/99	MUFFIN FAN REPLACEMENT
SSM-ASR9-009	TBD	PROCESSOR AUGMENTATION CARD PHASE II
SSM-ASR9-010	CANCELLED	ASR-9 UPDATES
SSM-ASR9-011	03/26/03	SOFTWARE SUPPORT FOR THE WEATHER SYSTEMS PROCESSOR
SSM-ASR9-012	06/19/03	WEATHER SYSTEMS PROCESSOR INTERFACE TO THE ASR-9
SSM-ASR9-013	06/05/01	ASR-9 SERIAL INTERFACE SYSTEM (ASIS) PHASE II
SSM-ASR9-014	05/20/04	ANOMALOUS PROPAGATION (AP) FILTER
SSM-ASR9-015	TBD	UPDATE PROCOMM PLUS SCRIPTS
SSM-ASR9-016	07/14/03	ASR-9 SERIAL INTERFACE SYSTEM (ASIS) PHASE II DUAL BOARD

SYSTEM TECHNICAL RELEASES (STR)

<u>Document Number</u>	<u>Date Issued</u>	<u>Title</u>
STR-ASR9-001	02/06/98	DELIVERY OF AIRPORT SURVEILLANCE RADAR-9 PROCOMM SOFTWARE UPDATE
STR-ASR9-002	12/29/98	DELIVERY OF AIRPORT SURVEILLANCE RADAR-9 PROCOMM SOFTWARE UPDATE VERSION 5.0
STR-ASR9-003	11/29/99	DELIVERY OF AIRPORT SURVEILLANCE RADAR-9 SOFTWARE UPDATE VERSION 6.0
STR-ASR-9-004	12/15/99	ASR-9 VARIABLE SITE PARAMETERS AND PROGRAMMABLE ALARM THRESHOLD/FILTER BASELINE
STR-ASR9-004A	06/20/01	ASR-9 VARIABLE SITE PARAMETERS AND PROGRAMMABLE ALARM THRESHOLD BASELINE UPDATES

SYSTEM DOCUMENTATION RELEASES (SDR)

<u>Document Number</u>	<u>Date Issued</u>	<u>Title</u>
SDR-ASR9-001	CANCELLED	BY SDR-ASR9-002
SDR-ASR9-002	CANCELLED	BY SDR-ASR9-003
SDR-ASR9-003	05/09/02	ASR-9 TECHNICAL INSTRUCTION BOOKS UPDATE AND REISSUE OF ASR- 9 TI CD ROM
SDR-ASR9-004	09/02/03	DELIVERY OF THE AIRPORT SURVEILLANCE RADAR-9 OPTIMIZATION PROCEDURES
SDR-ASR9-005	07/12/04	UPDATE TO STR-ASR9-004A
SDR-ASR9-006	01/23/04	UPDATE TO SSM-ASR9-012 OMIT INCORPORATION OF TI 6310.28 PAGE CHANGES
SDR-ASR9-007	TBD	UPDATE TO TI 6310.28

SYSTEM DOCUMENTATION RELEASES (SDR) (Continued)

<u>Document Number</u>	<u>Date Issued</u>	<u>Title</u>
SDR-ASR9-008	CANCELLED	UPDATE TO EEM 6310.18, CHG. 19, CHAP. 16
SDR-ASR9-009	11/02/04	UPDATE TO TI 6310.25
SDR-ASR9-010	10/08/04	UPDATE TO SSM-ASR9-014
SDR-ASR9-011	10/06/04	ANTENNA WRENCHES

ATTACHMENT 2. INSTRUCTION BOOK CHANGES

7.6.7.5 Related Alignment Procedures. After replacing charging switch A10, refer to paragraph 7.8.5.6 and perform the peak power output adjustment. At the conclusion of the alignment procedures, refer to paragraph 3.2.3 to return transmitter to system control.

7.6.8 Trigger Amplifier A11

The following instructions describe how to remove trigger amplifier A11 and how to check out and install a replacement unit. See figure 11-11, sheet 1 to locate trigger amplifier A11.

7.6.8.1 Equipment Required. An oscilloscope and an ohmmeter are required.

7.6.8.2 Preliminary Operations/Safety Precautions. Proceed as follows:

WARNING

Inadvertent application of transmitter high voltage can occur after circuit breakers CB1 and CB2 are turned on. To prevent inadvertent transmitter high voltage turn on, access RMS SYSTEM CONTROL PANEL menu (0.1.1) and set HIGH VOLTAGE OFF for the appropriate channel transmitter.

1. Refer to paragraph 3.2.1 to place transmitter in maintenance mode.
2. Turn off HIGH VOLTAGE POWER circuit breaker CB1 and AUXILIARY POWER circuit breaker CB2.
3. Engage circuit breaker lock on power distribution panel and use key to open right bay inner door.

7.6.8.3 Removal Procedure. See figure 11-11, sheet 4 for connector location and detail of latching mechanism, and proceed as follows:

1. Disconnect wiring connector from J1 on front of trigger amplifier A11.
2. Turn grip adjust knob counterclockwise to loosen latch, then turn latch lever to disengage latch.
3. Lower front of trigger amplifier A11 to expose rear handle.
4. Lift trigger amplifier A11 clear of cabinet.

7.6.8.4 Pre-Installation Checks. Before a replacement trigger amplifier A11 is permanently installed, various pre-installation checks must be performed to verify that no equipment problems exist that might cause early failure of the new unit. To perform the checks, proceed as follows:

1. Check diodes, RBDTs, etc., in new A11 prior to installation with ohmmeter.
2. Press both release knobs at bottom of MPA A12 and pull assembly out of cabinet, approximately 6 inches.
3. Remove plug from connector 12J3 located on modulator pulse assembly A12 top cover. Jumper pins 9 and 22 on cable W5P2 to disable the modulator interlock alarm (see figure 11-5, sheet 4). Leave disconnected during this test procedure.
4. Remove charging switch A10. Install replacement trigger amplifier A11.
5. Connect wiring connector to J1 on front of replacement trigger amplifier A11. Close right bay inner door.

6. Power on trigger amplifier and observe A11 test points:
 - a. Synchronize oscilloscope at CPI PR START jack (J6) on target i-f panel assembly A1 in Radar Receiver/Processor Channel A/B (Unit 2/5). Connect oscilloscope channel A input to A11A1TP16 and connect oscilloscope channel B input to A11A1TP6.
 - b. Turn on AUXILIARY POWER circuit breaker CB2 and HIGH VOLTAGE POWER circuit breaker CB1.
 - c. At trigger amplifier A11, observe trigger spacing of 740–microsecond interval from start of the charge trigger at A11A1TP16 to the start of the discharge trigger at A11A1TP6.
 - d. Turn on high voltage, after preheat is completed.
 - e. Expand triggers for a presentation with no jitter or lines going through presentation as shown in figure 7-3, examples A and B.
 - f. Look for a clean, open waveform on both test points for a one–minute period.
 - g. Turn off high voltage.
7. Observe trigger amplifier A11 test points A1TP8 and A1TP14:
 - a. Set oscilloscope for 2 milliseconds sweep time.
 - b. Turn on high voltage.
 - c. Observe the primary current (A11A1TP8) and RBDT stack voltage (A11A1TP14) for uniformity in voltage as shown in figure 7-3, examples E and F.
 - d. Expand waveforms E and F as shown in figure 7-3.
 - e. Monitor A11A1TP8 and A11A1TP14 for 30 minutes with high voltage on.
 - f. Observe A11A1TP14 for minimal droops at the trailing edge (discharge time). Both waveforms should show consistency from pulse to pulse.

NOTE

Some shift may be observed at the end of the sweep due to fill pulse or scope response to variable interval.

- g. If any discontinuity exists in waveform at A11A1TP8, then a possible defect exists in the trigger amplifier under test or the synchronizer.
 - h. If any discontinuity exists in waveform at A11A1TP14, then a possible defect exists in the trigger amplifier under test or the charging switch.
 - i. Turn off HIGH VOLTAGE.
8. Turn off HIGH VOLTAGE POWER circuit breaker CB1 and AUXILIARY POWER circuit breaker CB2.
9. Remove the trigger amplifier under test and verify the front–to–back resistance of RBDTs (greater than 5:1).
10. Reconnect cable W5P2 (removed in step 3) to A12J3 located on top of modulator pulse assembly. Install previously removed Charging Switch A10.
11. If no problems were encountered during this testing, reasonable assurance exists that the trigger amplifier is ready for permanent installation using the procedure in paragraph 7.6.8.5.

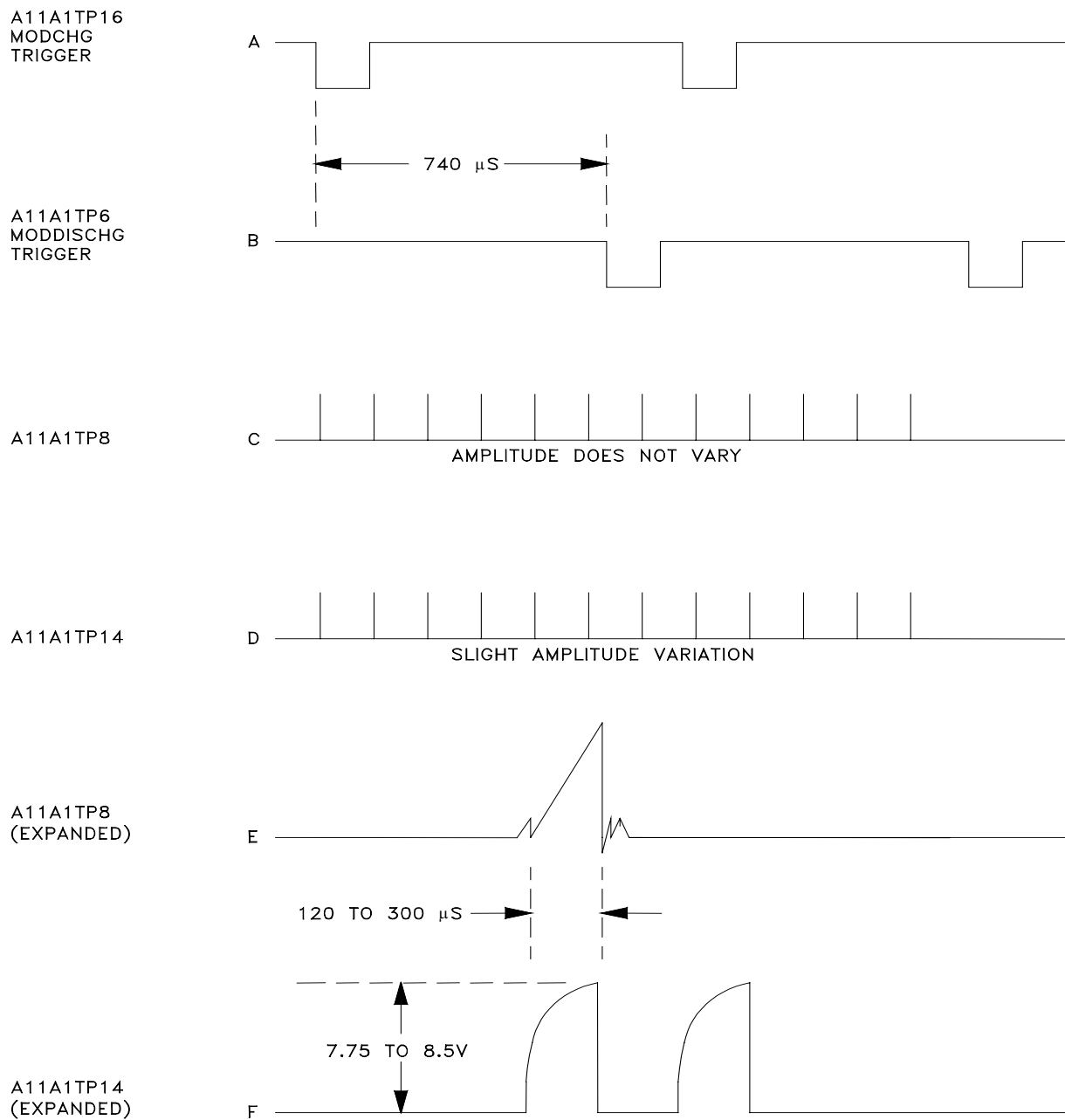


Figure 7-3. Trigger Amplifier A11 Pre-Installation Checks Waveforms

7.6.8.5 Installation Procedure. When the checks in paragraph 7.6.8.4 have been completed successfully, permanently install the new unit as follows:

1. Slide trigger amplifier A11 into rack assembly, engaging connector on rear of assembly with receptacle on cabinet assembly.
2. Secure trigger amplifier A11 by turning latch lever clockwise to engage latch on front of trigger amplifier.
3. Turn grip adjust knob clockwise to tighten latch.
4. Connect wiring connector to J1 on front of trigger amplifier A11.
5. Fold trigger amplifier handle down.
6. Close and lock right bay inner door.
7. Return key to HIGH VOLTAGE POWER circuit breaker CB1 interlock.

7.6.8.6 Related Alignment Procedures. After replacing trigger amplifier A11, perform the alignments in paragraphs 7.7.5.12.3 and 7.8.5.4 through 7.8.5.6. At the conclusion of the alignment procedures, refer to paragraph 3.2.3 to return the transmitter to system control.

7.6.9 Exhaust Blowers B1 and B2

See figure 11-11, sheet 2 and figure 11-22. The following instructions describe how to remove and install exhaust blowers B1 and B2. Exhaust blowers B1 and B2 are assembled on a single mounting plate in the top bay of the transmitter cabinet. Captive thumbscrews in the mounting plate allow these blowers to be removed and installed as an assembly.

7.6.9.1 Equipment Required. No special equipment is required.

7.6.9.2 Preliminary Operations/Safety Precautions. Proceed as follows:

WARNING

Inadvertent application of transmitter high voltage can occur after circuit breakers CB1 and CB2 are turned on. To prevent inadvertent transmitter high voltage turn on, access RMS SYSTEM CONTROL PANEL menu (0.1.1) and set HIGH VOLTAGE OFF for the appropriate channel transmitter.

1. Refer to paragraph 3.2.1 to place transmitter in maintenance mode.
2. Turn off HIGH VOLTAGE POWER circuit breaker CB1, AUXILIARY POWER circuit breaker CB2, and CABINET LIGHTS circuit breaker CB3.
3. Engage circuit breaker lock on power distribution panel.
4. At site breaker panel A15, turn off and secure circuit breakers that deliver AC power to transmitter under maintenance. (Circuit breakers CB1, 3, 5, and 19 control power to channel A, and circuit breakers CB2, 4, 6, and 21 control power to channel B.)

WARNING

The filter capacitor bank can hold a lethal charge long after transmitter power has been removed. The filter capacitor bank should be discharged after transmitter